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ENERGY WORKING GROUP
RESPONSE TO FEMA'S CRITICISMS

CRITICISM 1: FEMA: EMPB Scenario 3 Not Used

REBUTTAL: On August 30 the NSC decided to use EMPB scenario 3A (Full Mobilization) with a one year warning period. This decision has been made available to all members of the Stockpile Study Steering Group including FEMA. Scenario 3A was used by the Energy Working Group per the NSC decision. (S)

CRITICISM 2: FEMA: Energy Price and Allocation Controls Not Used

FEMA points out that EMPB war scenario 3 calls for implementation of fuel conservation measures and that western nations would initiate fuel rationing. (S)

REBUTTAL: The EMPB scenarios are not intended to set forth definitive economic and energy policies. This is to be done by the EMPB in various working groups that have been established. (S)

It should also be understood that both the energy and macro working groups relied on market prices for simulations of the wartime scenario as a valid way to simulate the conditions using models that are inherently price-driven and that cannot be used to validly simulate government allocation and price controls because the models are not designed to adjust for the inefficiencies of controls. Since reliance on the market produces the most efficient allocation of resources while meeting DOD wartime requirements the resulting GNP simulations are at a higher GNP level than would be the case under a controls assumption. The higher GNP can be viewed as a conservative estimate for planning purposes. (U)

Finally, the energy and macro reports are not intended to establish wartime energy or economic policies but rather to set a GNP planning level for stockpile and related contingency planning purposes. (U)

CRITICISM 3: FEMA: U.S. Oil Production Decreases and Canadian Production is Static

FEMA claims U.S. oil production decreases and Canadian production is static. (U)

REBUTTAL: The FEMA claim is inaccurate and fails to recognize that U.S. production is projected to decline by DOE in their National Energy Plan (10/83) between now and 1990 given current market prices. The working group U.S. production (including refinery gain) assumptions are as follows: (U)

	1983	1984	1985	1986
U.S. "current market" production (DOE/PPA)	10.75	10.50	10.30	10.00
U.S. production-war scenario in Wharton model	10.97	10.99	10.99	10.99

The U.S. production is significantly higher than the DOE projection and current U.S. production. The war scenario production for the U.S. as input into the Wharton model is based on supply elasticities of .03, .04, .06, .08. These elasticities exceed those used in the NSC-chaired NSSD-9 study and are generally viewed as optimistic in view of declining U.S. proven reserve base and the length of time required to discover and produce new fields. (S)

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CRITICISM 5: FEMA: No Oil Production Response in "Other Countries"

REBUTTAL: Production in "Other Countries" and in "OPEC" (located outside the Middle East) increases in the simulation in response to higher world oil prices. The Tables at Tab II in the Energy Report do not adequately reflect these changing levels of production due to simplifying assumptions made during the modeling process.* Production in Mexico increases by 30 percent; production in South America increases by 28 percent; production in Africa increases by 50 percent; and production in South and East Asia increases by 17 percent by 1986 over pre-crisis levels (see table below).

*The OMS model assumes that all countries produce at maximum sustainable levels in the base case and then reduces OPEC production to balance supply and demand. In the disruption simulation, production is reduced in OPEC and Western Europe and all other areas produce at maximum sustainable levels (except for the U.S. and Canada where production increases above maximum sustainable levels). Therefore, the Tables at Tab II do not appropriately reflect the changed levels of production between simulations in "Other Countries."

Supply Estimates for Nondisrupted Areas

	Actual 1983	Projected 1986	Percent Increase
United States**	10.2	11.0	7.7%
Canada**	1.6	1.6	
Mexico	2.9	3.8	31.0%
South America	2.9	3.7	27.6%
Africa	4.8	7.2	50.0%
South & East Asia	2.3	2.7	17.4%
Australia	0.5	0.5	

**U.S. and Canadian production assumed higher than CIA maximum sustainable capacity estimates.

CRITICISM 6: FEMA: Residential, Commercial, Civilian Gasoline Consumption Too High

REBUTTAL: The Wharton model was used to generate commercial and residential energy demands given higher energy prices resulting from the war scenario. The Wharton model relies on elasticities that are based on historic experience in the U.S. economy including those periods involving sharply higher oil prices such as 73/74 and 78/79. The relatively small decrease in commercial sector energy use occurs despite substantial increases in commercial sector output. This is because energy efficiency in the commercial sector increases by 11.8 percent between 1982 and 1986. This increase in efficiency is far greater than anything experienced in the past. The commercial sector energy efficiency increased by only 3.7 percent over the 1972 to 1982 period. During this period the economy experienced two major oil price increases. FEMA has provided no analytic basis to increase the already substantial commercial sector energy efficiency increase projected by the model. (U)

Energy use in the residential sector was also generated endogenously by the Wharton model. The model shows energy use decreasing by 11.4 percent between 1982 and 1986. Historically, a decrease of this magnitude has not occurred. FEMA has provided no analytic basis to further reduce residential sector consumption. (U)

Gasoline consumption declines by 42.6 percent between 1982 and 1986. This is a massive decrease in gasoline consumption of 2 MMB/D. FEMA argues in favor of reducing gasoline consumption by 70 percent which they believe is consistent with World War II experience. Because the structure and distribution of the labor force and the internal structure and dispersion of the U.S. economy has changed dramatically since World War II it is doubtful that a 70 percent reduction could be sustained while meeting the production levels required for DOD outputs. In addition, it should be noted that consumption efficiency levels used by FEMA for all stockpile minerals and materials are substantially lower than those used in the energy analysis. The working group questions how FEMA can assume only small increases in efficiency of use for minerals and materials while suggesting huge increases for petroleum. FEMA has provided no evidence that would justify a larger reduction nor any rational for the apparent disparity between the assumptions they use for minerals and those they propose for energy. (U)

CRITICISM 7: FEMA: Inventories Not Drawn Down

FEMA claims that world oil inventories would be drawn down to meet demands. (U)

REBUTTAL: Total free world inventories of petroleum are 4.7B barrels at the beginning of the simulation period. This estimate includes both government held and privately held stocks. A portion of this total would be lost to the free world during the first war year because of war damage occurring in Western Europe and Japan. Free world stocks adjusted for such damage are estimated to be 4.3B barrels (see Table below). For the U.S., the working group assumed a SPR drawdown of 385M barrels and a private sector drawdown of an additional 163M barrels to cover the difference between the petroleum import levels estimated by the Wharton model and the petroleum import levels simulated to be available in the OMS model. This reduces total free world stocks to 3.7B barrels. Of this total about 3B barrels (adjusting for war damage) are estimated to be a relatively tight operating stocks level. This leaves .7B barrels worldwide that potentially could be drawn

down. This represents less than .5 MMB/D over the simulation period which would have little-to-no impact on petroleum prices. Also it should be recognized that private sector inventories may not be drawn down but instead increased. Other internal studies have not been conclusive on which would occur.

Total World Stocks of Petroleum
(Millions of Barrels)

Area	Normal	Damage Adjusted
United States	1479	1479
OECD (excluding U.S.)	1776	1353
Non OECD Free World	666	666
Stocks in Transit	780	757
Free World Stocks	4701	4255
Less EIA Estimated Minimum Operating Stocks	3300	2987
Less Assumed U.S. Drawdown (SPR and Private)	1401	1268
		548
Net Stock Available to World		720
Net Available Drawdown (MMB/D)		.49

In addition, the Minerals Supply Working Group did not assume a drawdown of private sector mineral stocks because the quantities were not substantial over 3 years and a judgement was made to be somewhat conservative in estimating supply. These same assumptions were also used by the Energy Working Group except for the large U.S. strategic stocks and a smaller amount of private stocks. (U)

CRITICISM 8: FEMA: U.S. Fuel Substitution Underestimated

REBUTTAL: Substantial amounts of fuel substitution were assumed in the Wharton model simulations for natural gas which is more easily substituted for oil and to a lesser extent coal which is more difficult to substitute for oil. (U)

Natural gas consumption increases from 17 tcf in the warning year to over 20 tcf throughout the war years. Much of the increase would result from petroleum users converting to natural gas particularly in the industrial and commercial sectors. Coal use also increases in the war period and a portion of the increase is probably substituted either in the

industrial sector in direct burning applications or in the form of electricity. There is very little substitution of coal for petroleum in the transportation sector because coal cannot be used in autos, or trucks. Also, synthetic fuel plants converting coal to liquids cannot be built en masse in the three-year war period. (U)

The Wharton model projects significantly higher levels of coal production in 1984 and 1985 compared with their peacetime forecast. Likely increases in coal exports above the levels assumed in the model would increase these levels of production further since Polish coal exports to Europe would be eliminated. A major reason that coal production is not higher is the substantial increase in nuclear power output. By 1986 increases in nuclear output displace over 100M short tons of coal. FEMA's comments do not acknowledge limitations of substituting coal for oil, the major displacement of coal by nuclear power, or recognize that there are limits on how much coal production can increase during the war. Also, FEMA incorrectly assumes that low coal production in part is caused by low steel production. Coal used for steelmaking purposes increases by 70% during the war. (S)

CRITICISM 9:

a) FEMA: Energy Efficiency Add Factors and Cosmetic Modeling Changes were Made to Wharton Runs

REBUTTAL: No "add factors" were used to promote energy efficiency. The levels of energy efficiency are endogenously determined in the model and predominately reflect the model's response to higher energy prices. If anything, efficiency changes are extremely high. Since we had no basis to "add factor" these efficiencies, they were left alone. Reductions in these energy efficiency improvements would expand coal production. (U)

b) FEMA: Natural Gas Production Arbitrarily Limited

REBUTTAL: Natural gas consumption was assumed to increase substantially from recent levels (17 tcf) and then be sustained at over 20 tcf for three years. Increases in supply were based on current reserves, expected new discovery rates, drilling activity and the time to put new production systems in plan. The production level in the war scenario is significantly higher than normal market estimates but consistent

with conservative supply response assumptions used by DOI for other minerals. Higher production may be possible but the Wharton model did not require it. (U)

CRITICISM 10: FEMA: Energy and Materials Demand/Supply Estimates Are Not Equally Conserative

REBUTTAL: FEMA claims that different wartime damage assumptions are being used for energy than those used for minerals. This is incorrect. EMPB war damage assumptions are identical for both involving the Middle East, Europe, North Africa and the Far East. Production at maximum sustainable capacity adjusted for shipping losses is being assumed for petroleum as well as minerals in areas where there is no war damage. (S)

FEMA also claims that the minerals-producing countries will get significantly less oil and therefore cannot produce minerals at full capacity rates. They cite Japan as having lost 33 percent of their normal oil supplies. (S)

For minerals-producing nations the energy required to produce the minerals is a relatively small portion of total energy consumption. In part, electricity generated by nonpetroleum fuels supplies the required energy. FEMA has not provided any analytic estimates that demonstrate minerals production consumes a substantial amount of the oil available in any of the countries. It is reasonable to assume fuel substitution in these countries as has been assumed for the U.S. For example, Japan most likely would increase liquid gas imports, coal and nuclear to get by on less oil. Japan is projected to lose 25% of normal oil imports or about 20% of total energy consumption. Substitution and efficiency-of-use could significantly replace the oil loss thereby enabling high levels of production except for war damage. (S)

CRITICISM 11: FEMA: War-Related Oil Production Capacity Loss Is Too Severe

REBUTTAL: The 15.5 MMB/D loss in productive capacity is consistent with EMPB scenario guidance. The belief that this is not so stems from a misreading of EMPB scenario description by FEMA. FEMA states, "the EMPB

scenario indicates that wartime oil exports are lost to the U.S." (emphasis added). The scenario states instead that exports from the Middle East [to the world] are reduced to 15% of prewar levels. This is a massive loss of oil production capacity that is concentrated in a relatively small geographic area (Persian Gulf) that is in the middle of a major war related conflict. One cannot produce and transport oil under such circumstances and one cannot quickly and easily replace facilities that would be destroyed by war damage. The working group estimates are based on EMPB and DOD staff guidance. It should be noted that other oil producing areas of the world such as Nigeria, Indonesia, Venezula, Mexico and Alaska were assumed to not be damaged during the conflict. (S)

CRITICISM 12: FEMA: Objections Not Included in Working Group Report

REBUTTAL: FEMA's objections are being distributed to all working group members and all steering group agencies. In general, FEMA was repeatedly requested to provide analytic backup to its many claims and little was provided. This document contains a detailed assessment of what was provided. (U)

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THE DIRECTOR OF CENTRAL INTELLIGENCE

WASHINGTON, D.C. 20505

National Intelligence Council

NIC #01563-84
9 March 1984

MEMORANDUM FOR: Richard Levine
Chairman, Strategic Materials Task Force

FROM: Maurice C. Ernst
National Intelligence Officer for Economics

SUBJECT: DoD, JCS and FEMA Comments on the Intelligence Community's Assessment of the Reliability of Key US Suppliers -- Task 9

1. During the past week or so I have received three memoranda (Tab A, B, and C) which raised various issues concerning the Intelligence Community's assessment of the reliability of key US metal and mineral suppliers in wartime. The major points addressed in the memoranda from DoD/OASD/ISA, JCS/Logistic Planning, and FEMA concern four types of issues: the scope and responsibility of Task 9; the methodology used; the production process; and the specific evaluations of country reliability. I will respond to each of these in turn.

Task 9 Objectives

2. The original objective of Task 9: Political Reliability was contained in the primary tasking document on US stockpile goals from Messrs. Regan, Stockman, and Feldstein to William Clark on 18 May 1983. This request asked for estimates of, inter alia, likely financial and economic impact, an assessment of FEMA's methodology and shipping losses (see Tab D). Upon examination, however, there was significant overlap with Task 6 -- International Materials Supply. To clarify these redundancies and ensure proper coordination, revised terms of reference for Task 9 were tabled and approved at an interagency meeting chaired by Ken Glozer, OMB, in mid-October. As a result, Task 9's responsibilities were defined as follows:

A. Would the government of source country withhold the commodities from the US? Consider both its financial needs and political orientation under the wartime scenario.

B. Would civil unrest, sabotage, insurgency, or other military action, whether or not Soviet-inspired, disrupt production or exports of the commodities under the wartime scenario?

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C. Would contingencies listed under A and B cause land transport routes through non-producers of major commodities to be interrupted under the wartime scenario?

D. Considering the above risks, how reliable would the potential supply of stockpile commodities from each country be to the US?

3. The JCS, OASD/ISA, and FEMA memos raise issues which are clearly germane to the overall exercise, but do not pertain specifically to Task 9, as defined. These issues concern, in particular:

- The availability of sufficient skilled manpower, spare parts, transportation, and oil, to support projected, technically feasible, levels of production of critical materials in foreign countries.

- The provision of specific economic incentives to foreign producers (e.g., special allocations of oil or other scarce products) to make this projected production available if market incentives prove inadequate.

In our view, issues such as these should be addressed in the overall study. Special steps might have to be taken to provide necessary inputs and incentives. However, we do not believe that such steps can be specified in advance under a quite general war scenario.

Methodology for Task 9

4. Our objective was to select the simplest methodology consistent with the specific wartime scenario. We tried to limit the variables on which judgments were made to those we felt were essential to the overall reliability estimates, and for which some objective basis could be discussed. We did not, for example, assess the possible impact of economic and financial pressures on "political instability," as ISA suggests, because we could see no way to determine either the nature and extent of such pressures in wartime or their political impact.

5. With respect to the country ratings, there were two broad choices: either a probability indicator or a numerical ranking. The latter was selected because the analysis could not support probability judgments and a ranking was more compatible with the computer model simulation.

Process

6. FEMA's memo also contains several comments about the production and coordination process used in preparing Task 9. The memo reflects an apparent misunderstanding of what was done. In brief:

-- FEMA and OMB, as well as the Intelligence Community Group (DIA, CIA, and State/INR) were members of the Task 9 Working Group.

-- The basic methodology was discussed at the first taskforce meeting. FEMA raised no clear objection.

-- Each Agency (DIA, CIA, State/INR) was asked to respond to the previously listed Task 9 questions.

-- The DIA draft was chosen as a starting point because of the more detailed LDC and transportation analysis and a more useful format.

-- Each State desk prepared independently a country analysis; these comments were used to revise the DIA draft and in preparing the cover memo.

-- The reliability judgments made at the subcommittee meetings were presented as tentative--subject to the approval of each Agency.

-- All drafts and revisions were sent to FEMA for comment and coordination.

-- If FEMA has serious substantive problems, they should have submitted a written or oral dissent.

Country Rankings

7. On the substantive side, OASD/ISA had comments on six countries:

Guinea -- ISA suggested changing Guinea to fairly reliable because of the Soviet presence. However, the Guinean-Soviet relationship has cooled considerably and is worsening. Guinea probably would be quick to throw out the Soviets if they had the chance. We will retain the reliable rating.

Gabon -- ISA suggested a fairly reliable ranking because of the need for transport through the Congo. The ranking of reliable will be made conditional upon the completion of the trans-Gabon railroad, expected in a year or so.

South Africa and Botswana -- We will retain the fairly reliable ranking; the rationale in paragraph 7 of the covering memo seems to incorporate ISA's concerns. It is recognized that this is a very close substantive call, but we believe is necessary from the viewpoint of prudent policy planning concerning such a vital strategic area.

China -- In remarks the Outlook/Section "will be unreliable" will be changed to "might be unreliable." Also we will delete the reference to Taiwan.

8. If you have any further questions concerning the referenced memoranda, please call at any time.

Maurice C. Ernst

Attachments:
As stated

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